

REMARKS/ARGUMENTS

Favorable reconsideration and allowance of the present application are respectfully requested in view of the following remarks. Claims 1-18 and 20-32 were pending prior to the Office Action.

A. ALLOWABLE SUBJECT MATTER

Applicants note with appreciation the indication of allowable subject matter in claims 22 and 23.

B. § 112, 2ND PARAGRAPH REJECTION

Claims 27-32 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Claim 27 is amended to address this issue. The scope of claim 27 remains the same. Applicants respectfully request that the rejection be withdrawn.

C. DOUBLE PATENTING

Claims 1, 4, and 6 stand provisionally rejected under the judicially-created doctrine of non-statutory obviousness type double patenting as purportedly being unpatentable over claims 1, 2, and 6 of co-pending U.S. Patent Application No. 10/584,136 in view of Jain et al. (U.S. Patent No. 7,373,543, *hereinafter "Jain"*). Applicants respectfully request that the

provisional rejection be held in abeyance until at such a time the claims of the co-pending applications are in fact allowed.

D. §103 REJECTION – BILLHARTZ, BAINES

Claims 20, 21, 26-28, 31 and 32 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Billhartz (U.S. Publication No. 2003/0204587, *hereinafter* “Billhartz”) in view of Baines (U.S. Publication No. 2004/0027994). Applicants respectfully traverse.

Claim 20 is directed toward a method for routing a data packet in a multiple hop wireless network from a source node to a destination node. The claim recites, in part “the source node predicting future link status of at least one link in a chain between the source node and the destination node based on the RREP message, in which the RREP message includes link status information on one or more links in the chain, and in which the link status information of a link between two nodes in the chain includes an Open Systems Interconnection (OSI) layer 1 parameters and/or an OSI layer 2 parameters, wherein at least one parameter describes a time varying nature of radio channels of links between the nodes.”

In the Office Action, it is alleged that Billhartz discloses the feature of “the source node predicting future link status of at least one link in a chain between the source node and the destination node based on the RREP message” in [0034]. *Office Action, page 8.*

On the contrary, Billhartz does not teach or suggest this feature.

Billhartz is directed towards route determination for multihop routes in a mobile ad hoc network. *Billhartz [0012]*. Billhartz describes a preferred use of various QoS parameters (e.g., available bandwidth, error rate, end-to-end delay, end-to-end delay variation, hop count, expected path durability, and priority) which are obtained as a source sends a request in order to discover a route to a destination. *Billhartz [0032]*. The request is transmitted to various intermediate nodes, which in turn update the QoS parameters according to *current* conditions or expected delays associated with *traffic flow*. *Billhartz [0042], [0070]*.

The relied upon paragraph [0034] is part of Billhartz paragraphs [0032] – [0048] and FIGs. 1-5 that describe a method for determining a route from a source node 1 to a destination node 4 in a mobile ad hoc network. The method begins when the source node 1 transmits a quality-of-service (QoS) route request RREQQ based on a QoS parameter, and RREQQ, which includes an updatable QoS link metric, is sent to intermediate nodes 2 and 3. *Billhartz [0032]*. If the intermediate node can support the requested QoS parameter, the intermediate node updates the QoS link metric and forwards the RREQQ to other nodes. *Billhartz [0033]*. The destination node 4, upon receiving the RREQQ, generates a reply RREPQ to the source node 1, which includes the updated QoS link metric for each discovered route. *Billhartz [0034]*. The source node 1 generates QoS route metrics based upon the updated QoS link

metrics in replies RREPQ from the destination node 4 for discovered routes and selects a route based on the QoS route metrics. *Billhartz [0034]*.

There is nothing in [0034] or anywhere else in Billhartz that even remotely suggests that the source node 1 predicts the “future link status of at least one link in a chain” as recited in claim 20. Instead, Billhartz teaches estimating an expected delay associated with *traffic flow*. The QoS route metrics referred to in the Office Action is, at best, a tool to help in estimating the expected delay. Billhartz indicates that the QoS route metrics are generated based on the QoS link metrics which are updated by the intermediate nodes each according expected delays, which are based on the *current* conditions at the nodes. Thus, the QoS metrics themselves are, at best, based on the *current* conditions as well. One skilled in the art would not associate the QoS metrics with predicted future link status information.

Baines does not correct this deficiency of Billhartz. Baines is directed toward a determination of a link quality at a receiver. Thereafter, selecting a parameter from the determination and sending information related to the parameter to a transmitter. The transmitter may alter its configuration based on the information. *Baines, [0010-0014]*. Baines does not teach or suggest the feature of “the source node predicting future link status of at least one link in a chain between the source node and the destination node based on the RREP message.” The combination of Billhartz and Baines, at best, would suggest altering transmitting configurations.

For at least the above stated reason, independent claim 20 is distinguishable over Billhartz and Baines. For similar reasons, independent claim 27 is also distinguishable over Billhartz and Baines. Claims 21, 26, 28, 31 and 32 are distinguishable over Billhartz and Baines by virtue of their dependencies from claims 20 and 27 as well as on their own merits.

Applicants respectfully request that the rejection be withdrawn.

E. §103 REJECTION – BILLHARTZ, BAINES, JAIN

Claims 1, 5-8, 11-14, 17 and 18 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Billhartz in view of Jain et al., and further in view of Baines. Applicants respectfully traverse.

Independent claim 1 recites, in part “the routing element predicting future link qualities of links in a chain between a source node and a destination node based on the updated link status information”; independent claim 6 recites, in part “determination means using said link status information for predicting future link qualities of links in a chain between a source node and a destination node”; and independent claim 12 recites, in part “determination means using acquired link information for predicting future link qualities of links in a chain between a source node and a destination node.”

As demonstrated above, Billhartz and Baines, individually or in combination, do not teach or suggest this feature. Jain does not correct this deficiency of Billhartz and Baines. Therefore, claims 1, 6 and 8 are also

distinguishable over the combination of Billhartz, Baines and Jain. Claims 5, 7-8, 11, 13-14, 17 and 18 are distinguishable over Billhartz, Baines and Jain by virtue of their dependencies from claims 1, 6 and 8 as well as on their own merits.

Applicants respectfully request that the rejection be withdrawn.

**F. §103 REJECTION – BILLHARTZ, BAINES, JAIN, KUSZMAUL,
BOAZ, BILLHARTZ ‘476**

Claim 2 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Billhartz in view of Jain and Baines, and further in view of Kuszmaul (U.S. Patent No. 5,111,198, *hereinafter* “Kuszmaul”); claims 3, 4, 9, 10, 15 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Billhartz in view of Jain and Baines, and further in view of Boaz (U.S. Publication No. 2008/0048883); claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Billhartz et al. (U.S. Publication No. 2003/0202476, *hereinafter* “Billhartz ‘476”) in view of Baines, and further in view of Jain; and claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Billhartz ‘476 in view of Baines, and further in view of Jain, and further in view of Boaz.¹

These claims depend from independent claims 1, 6, 12, 20 and 27 directly or indirectly. It is demonstrated that the independent claims are

¹ Claims 24 and 25 depend from claim 20. Therefore, Applicants assume that Billhartz is also relied upon in the rejection of these claims.

distinguishable over Billhartz, Baines and Jain, individually or in any combination. Kuszmaul, Boaz and Billhartz '476, individually or in combination, do not correct the deficiencies of Billhartz, Baines and Jain. Therefore, independent claims are also distinguishable over any combination of Billhartz, Baines, Jain, Kuszmaul, Boaz and Billhartz '476. By virtue of their dependencies from independent claims as well as on their own merits, the dependent claims are also distinguishable over the same references.

Applicants respectfully request that the rejections be withdrawn.

G. CONCLUSION

All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance. Should there be any outstanding matters that need to be resolved, the Examiner is respectfully requested to contact Hyung Sohn (Reg. No. 44,346), to conduct an interview in an effort to expedite prosecution in connection with the present application.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____



Hyung N. Sohn
Reg. No. 44,346

HNS/edg
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100